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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,864	11/26/2007	John E. Lockley	APL 200002US01	2047
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FAY SHARPE LLP 1228 Euclid Avenue, 5th Floor The Halle Building Cleveland, OH 44115			EXAMINER HU, HENRY S	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/551,864

Applicant(s)

LOCKLEY ET AL.

Examiner

HENRY S. HU

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment of December 20, 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9-8-2010
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. USPTO has received **two** things including: (A) **Amendment** filed on December 20, 2010 and (B) **one** new **IDS** (1 page) filed on September 8, 2010, which is in response to Non-Final office action filed on August 18, 2010. With such an amendment, **Claim 1 is amended, while no claim is cancelled or added.** To be specific, the scope of parent **Claim 1** is once-amended so as to overcome 112-2nd claim rejection. The type of ion-conducting polymeric material now includes a combination of **three** groups including: (i) **phenyl moieties**; (ii) **carbonyl and/or sulphone moieties**; and (iii) **ether and/or thioether moieties**.

2. This Application **10/551,864** is a **371/PCT/GB2004/001375** with a UK priority at April 2, 2003. **Two IDS** (1 page each) are filed accordingly. Examiner **accepts Applicants' one drawing sheet with Figure 1** since **a brief description for drawing is now added** on page 1 in specification. **Claims 1-20 with two independent claims** (Claims 1 and 17) are now pending, while non-elected Claims 17-18 (Group II) and Claims 19-20 (Group III) are still withdrawn from consideration. An action follows. Only "A"-cited references are found in international search report for Applicants' priority paper **WO 2004/088673 A1 to Lockley et al. for PCT/GB2004/001375**.

Response to Argument

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3. Applicant's brief argument filed on December 20, 2010 has been fully considered but they are not persuasive. The focal arguments related to the patentability will be addressed as follows: the scope of parent **Claim 1** is now amended so as to overcome 112-2nd claim rejection. The type of ion-conducting polymeric material now includes **a combination of three groups** including: (i) **phenyl moieties**; (ii) **carbonyl and/or sulphone moieties**; and (iii) **ether and/or thioether moieties**. Accordingly, the scope of parent Claim 1 is changed from previous one.

After further consideration, 112-2nd claim rejection on "the type of ion-conducting material" is removed. However, new **112-2nd claim rejection on "removing greater than 80%"** is applied, while previous 102 and 103 rejections are sustained. **Final rejection is thereby applied** with current situation on parent Claim 1. Further amendment on parent Claim 1 is suggested.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

On **Claim 1** at line 12, the writing as “removing greater than 80% of the total amount of said first organic solvent in said solvent mixture” causes indefiniteness. It is unclear how much of said first organic solvent in said solvent mixture is stayed in said solvent mixture so that the involved ion-conducting polymeric material is homogeneously dissolved and/or dispersed in such a formulation. Current scope includes the total removal of said first organic solvent so that the involved ion-conducting polymeric material would be not homogeneously dissolved and/or dispersed. Accordingly, rewriting with clarification is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. The limitation of “**once-amended**” parent **Claim 1** of the present invention relates to **a method of preparing a formulation** comprising an ion-conducting polymeric material, the method comprising:

(a) **selecting an ion-conducting polymeric material** of a type which includes **a combination of “three” moieties including:** (i) phenyl moieties; (ii) carbonyl and/or sulphone moieties; and (iii) ether and/or thioether moieties;

(b) **selecting a solvent mixture** comprising **water and a first organic solvent** in which mixture said ion-conducting polymeric material can be dissolved and/or dispersed;

(c) **dissolving and/or dispersing** said ion-conducting polymeric material in said solvent mixture;

(d) **removing greater than 80% of the total amount of said first organic solvent** in said solvent mixture, thereby **to leave a formulation** comprising said ion-conducting polymeric material dissolved and/or dispersed in a solvent formulation comprising a major amount of **water**.

See other limitations of dependent **Claims 2-16**.

8. **Claims 1-16 are rejected** under 35 U.S.C. 102(e) as being anticipated by **McCovick et al.** (**US 2004/0110867 A1** with a US filing date at December 6, 2002) for the reasons set forth in paragraphs **6-9** of office action dated 8-18-2010 as well as the discussion below.

9. **Claims 1-16 are rejected** under 35 U.S.C. **103(a)** as obvious over **Cardew et al.** (**EP 202,849 A2**), **Hana et al.** (**EP 145,305 B1**) and **Tomaschka et al.** (**EP 277,834 B1**), in combination or alone in view of **McCovick et al.** (**US 2004/0110867 A1**) for the reasons set forth in paragraphs **11-15** of office action dated 8-18-2010 as well as the discussion below.

10. Regarding “**process of making a formulation**” of “once-amended” parent **Claim 1**, said process “**comprises**” **four** sequential steps including: (A) **selecting an ion-conducting polymeric material**; (b) **selecting a solvent mixture comprising water and a first organic solvent**; (c) **dissolving and/or dispersing** said ion-conducting polymeric material; (d) **removing** “**greater than 80 %**” of the total amount of said **first organic solvent**. With current amendment, the type of ion-conducting polymeric material now includes **a combination of three groups** including: (i) **phenyl moieties**; (ii) **carbonyl and/or sulphone moieties**; and (iii) **ether and/or thioether moieties**. Accordingly, the scope of parent Claim 1 is changed from previous one.

11. **Previous 102 and 103 rejections mainly relying on the use of McCovick reference are sustained** as following: Applicants have presented a key argument that “McCovick’s

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process is irrelevant to the process of parent Claim 1 since **dyes are not ion-conducting polymeric materials**" (see page 9 in the middle of Remarks). Attention is directed to **three** facts including: (A) Instant parent Claim 1 is only related to **a process of making a formulation** as long as it "**comprises**" an ion-conducting polymeric material with structures as specified. Open language '**comprising**' is applied to not only the composition of formulation but also the process.

12. (B) McCovick has prepared some **aqueous pigmented ink formulations**, which at least in some cases indeed a suspension of a colorant particle in an aqueous medium. The formulation comprises at least **three** components including: (a) colorant particles, (b) water, and (c) dispersants and/or surfactants such as **polyester ionomer** (see paragraphs 0029-0030; particularly see the use of water-soluble or water-dispersible ionomer at paragraph 0036, line 6), which is comprising a combination of the claimed **three** type moieties including: (i) **phenyl moieties**; (ii) **carbonyl and/or sulphone moieties**; and (iii) **ether and/or thioether moieties**. (see the polymer's chemical structures on paragraphs 0042-0048). According to the art, polyester ionomer certainly reads on ion-conducting polymeric material.

13. (C) McCovick has indeed prepared the claimed formulation **comprising a major amount of water**. As discussed earlier, the preparation of ink formulation as disclosed by McCovick in paragraph 0030 fundamentally includes **three** steps as: (A) **dissolving a dye in a water-miscible solvent** to form a solution, (B) then **dispersing said solution as fine liquid droplets into an aqueous solution**, and (C) finally **removing the solvent** by evaporation. A

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solvent mixture comprising water and at least some organic solvent(s) are used to dissolve and/or disperse the polyester ionomer (paragraph 0070). Based on the fact that the later removal of organic solvent(s) is required, **an ink jet ink composition comprising a major amount of water such as 30-90 wt% of water is obtained** (abstract, line 1-7).

14. In summary, **previous 102 and 103 rejections are sustained** with the same or at least similar rationale. **Final rejection is thereby applied** with current situation on parent Claim 1. Further amendment on parent Claim 1 is suggested accordingly.

Conclusion

15. Applicant's amendment **necessitated the new ground(s) of rejection presented in this Office action.** Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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16. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Vasu Jagannathan, can be reached on (571) 272-1119. The fax number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/
Primary Examiner, Art Unit 1762

/Henry S. Hu/
Examiner, Art Unit 1764

February 24, 2011